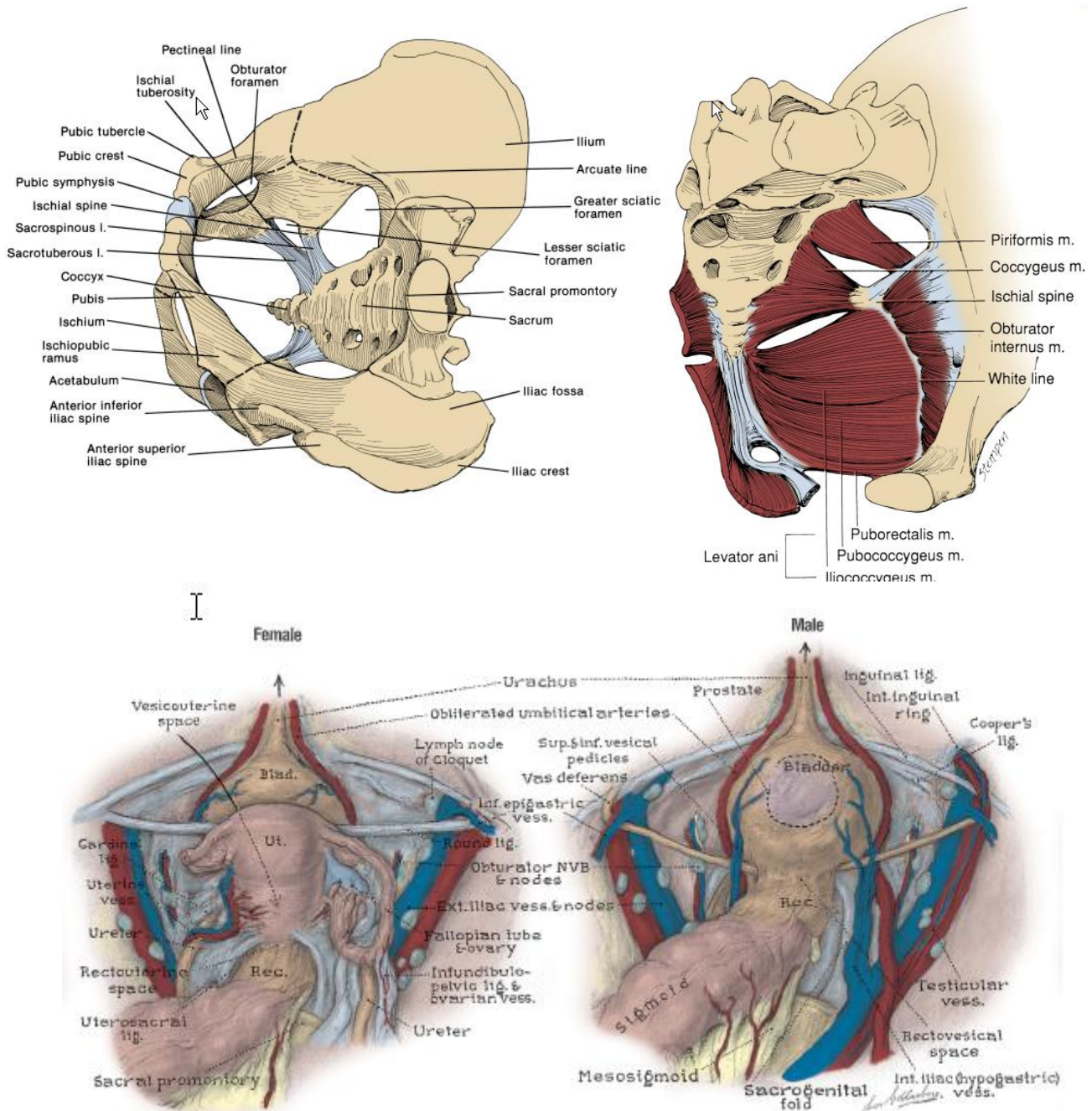


Lower tract anatomy



Blood supply

Common iliac artery bifurcates at SIJ

After short distance internal iliac artery divides into anterior and posterior divisions

Posterior division (3)

Iliolumbar

Lateral sacral

Superior gluteal

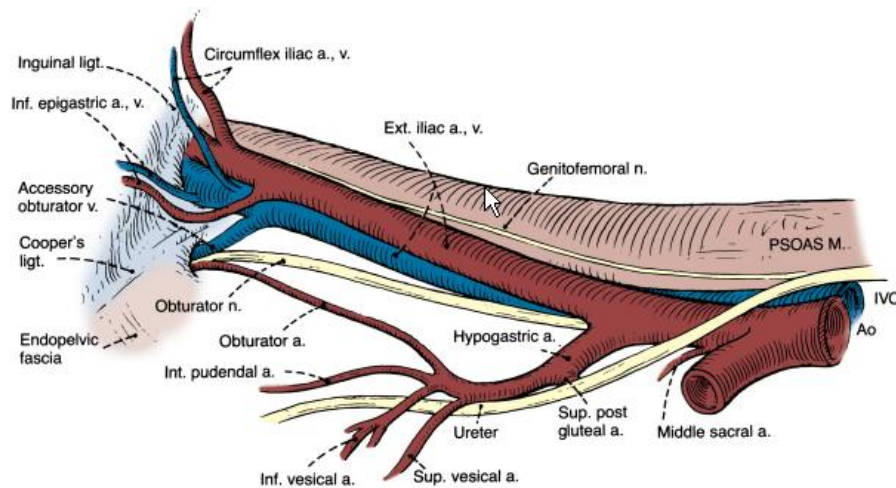
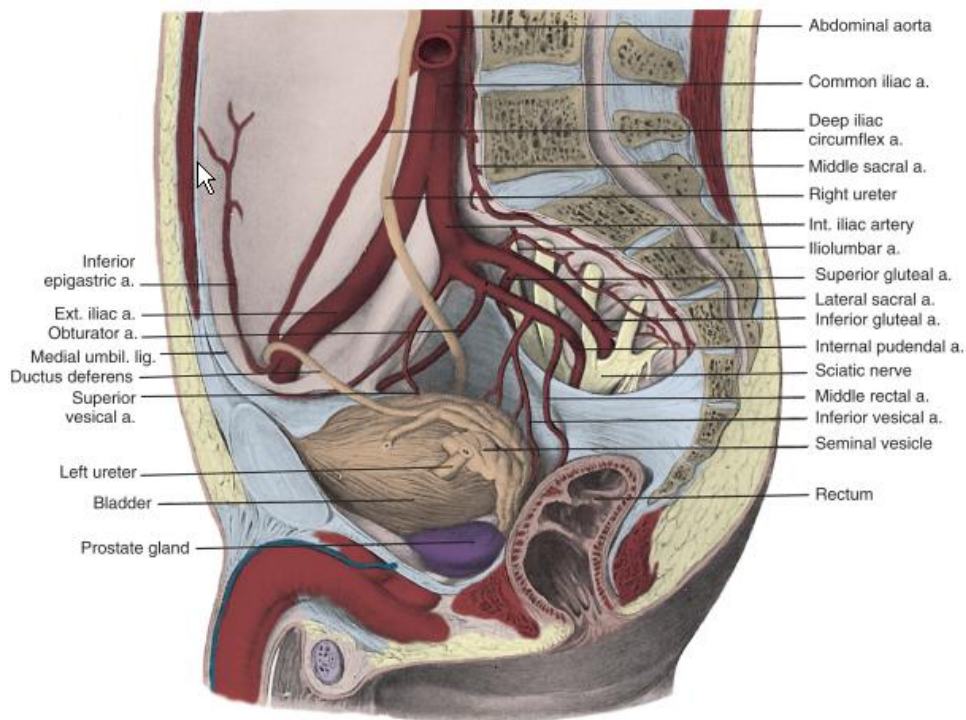
Anterior division (9; 3 bladder, 3 other viscera; 3 parietal)

Superior vesical

Obliterated umbilical

Inferior vesical
Middle rectal
Vaginal
Uterine
Obturator*
Inferior gluteal
Internal pudendal

Vaginal and uterine arteries in females only. Equivalent vessels supplying prostate and seminal vesicles in males derived from inferior vesical artery.
* Accessory obturator artery from inferior epigastric artery in 25% patients (accessory obturator veins drain into external iliac vein in 50%)



Internal pudendal artery

Passes out of the pelvis below piriformis through greater sciatic foramen

Runs in Alcock's canal within ischiorectal fossa then turns into lesser sciatic foramen and runs on surface of obturator internus which is closely applied to ischial tuberosity. Gives off inferior rectal branch and runs forward piercing deep perineal space.

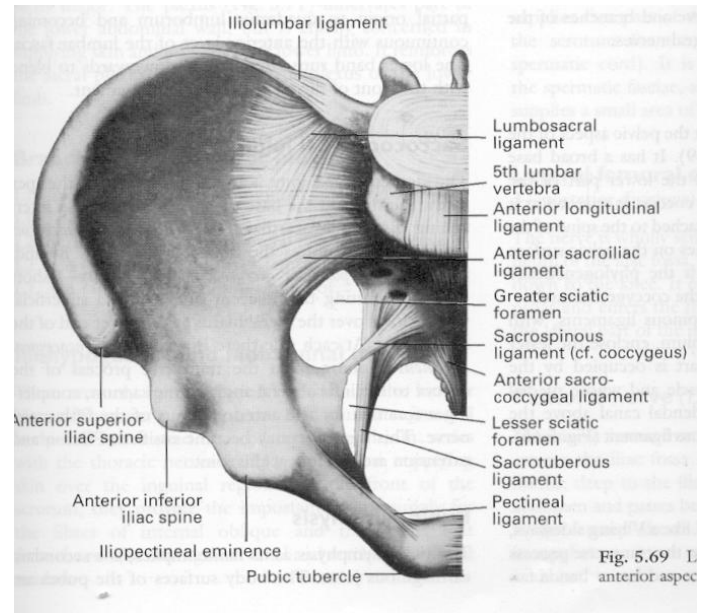
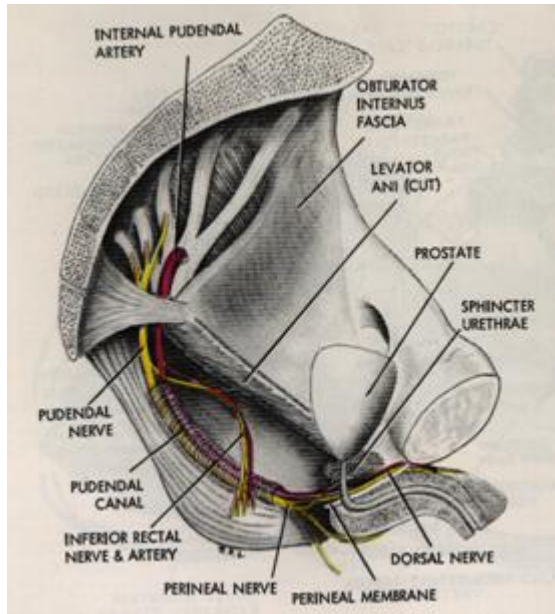
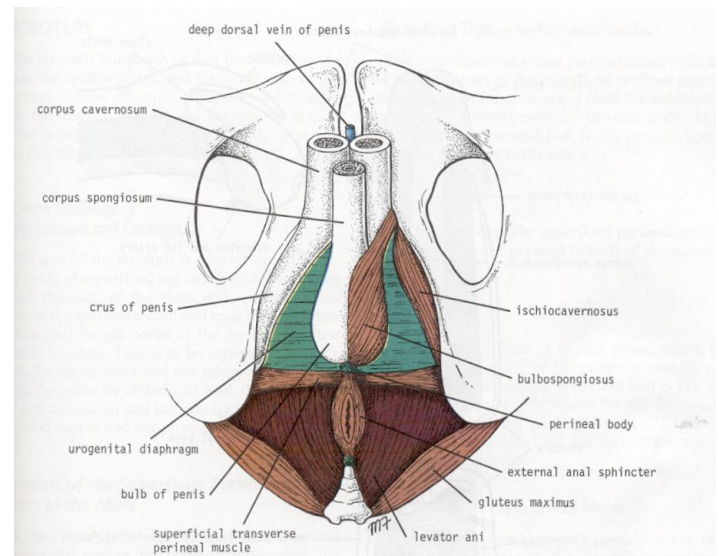
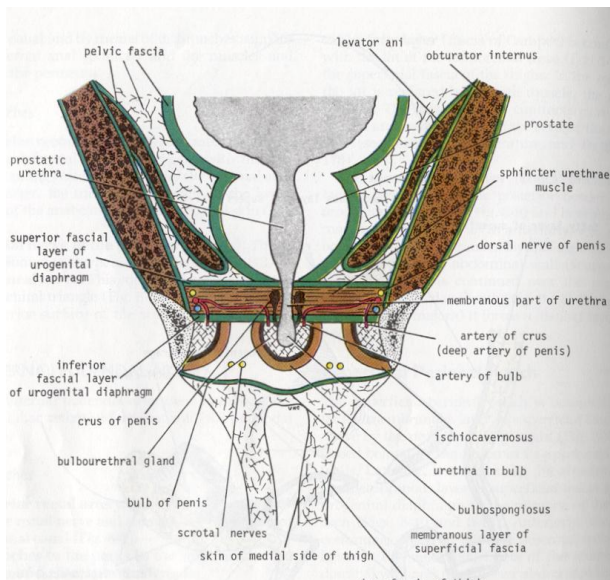


Fig. 5.69 L. anterior aspect



Branches of internal pudendal artery:

Inferior rectal
Posterior scrotal
Transverse perineal
Artery to bulb

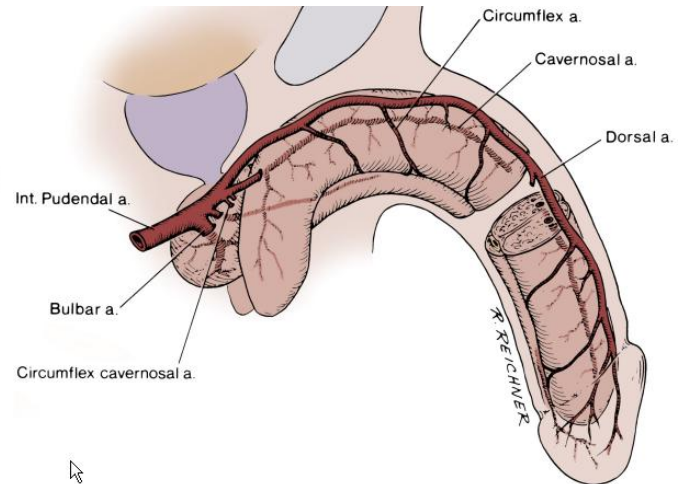
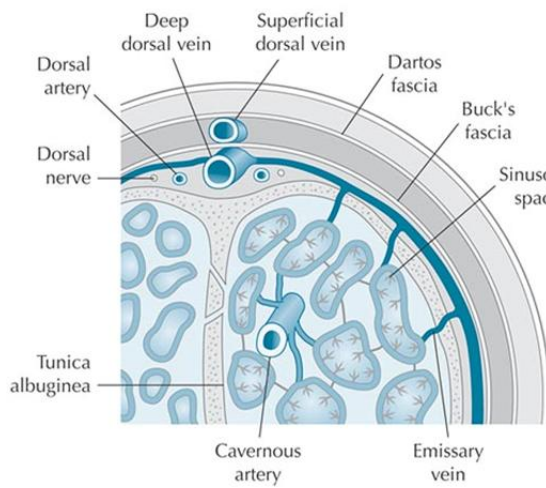
Deep penile artery

runs medially in deep perineal space to supply corpus spongiosum (above right) and urethra

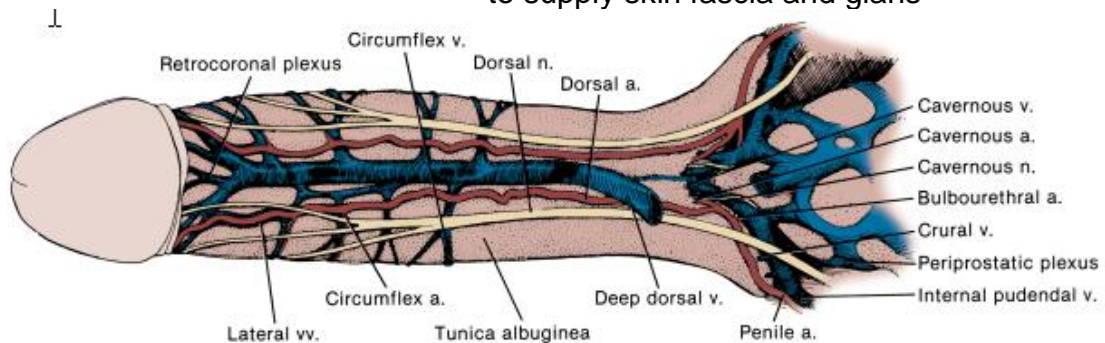
runs forward into crus of penis to supply corpus cavernosum. Just before entering crus gives off:

Dorsal artery of penis

runs on top of crus towards midline, pierces suspensory ligament and joins median deep dorsal vein and dorsal penile nerves (see below – artery should be red). Runs forward



to supply skin fascia and glans



Pudendal nerve

Anterior roots of S2/3/4

Runs in pudendal canal with pudendal artery

Divides *within pudendal canal* to give terminal branches, dorsal nerve of penis (direct continuation; see above right) and larger perineal branch

- (i) Dorsal nerve runs lateral to dorsal artery as above
Supplies penile skin and glans and branches to c. cavernosum
No branches in deep perineal pouch
- (ii) Perineal branch Superficial and deep transverse perineal muscles
Urethral sphincter (rhabdosphincter - Onuf's)
Ischiocavernosus
Bulbocavernosus
Penile urethra sensation
posterior scrotal branches

Skin innervation of penis and scrotum

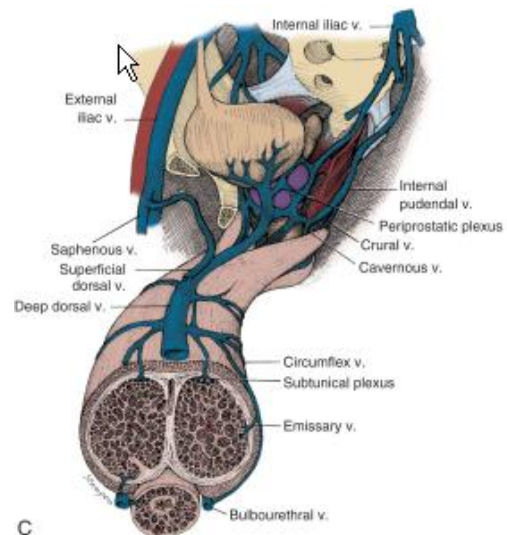
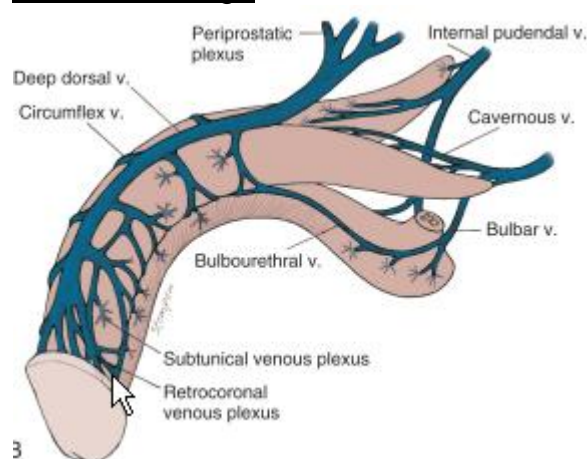
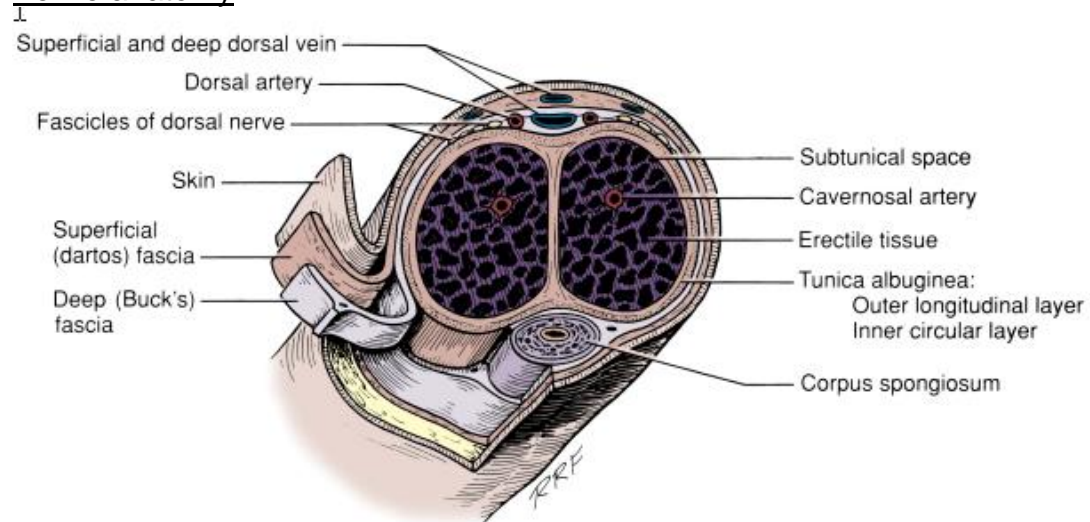
- Penis dorsal penile branch of pudendal (S2)
posterior scrotal from perineal branch of pudendal
small area on dorsum of penile shaft (L1)
- Scrotum Anterior 1/3 ilioinguinal nerve and genital branch of genitofemoral nerve (L1)

Posterior 2/3 perineal branch perineal nerve (S3)

Erectogenic pelvic nerves

Intermediolateral horn cells of S2/3/4

Run in pelvic splanchnic pelvic nerves to inferior hypogastric plexus (also known as pelvic plexus; located in sagittal plane on either side of rectum)
Cavernosal nerves travel from tip of seminal vesicles along posterolateral border of prostate to apex of prostate (5 o'clock and 7 o'clock). Pierce perineal membrane, give slips to sphincter at 3 o'clock and 9 o'clock positions, and rotate dorsally above cavernous vein to enter corpora at 1 o'clock and 11 o'clock positions respectively

Venous drainagePenile anatomy

Buck's fascia fuses with tunica albuginea proximally. Therefore rupture of tunica albuginea contained within Buck's fascia – aubergine deformity
Dartos fascia in continuity with Scarpa's fascia. Therefore rupture of tunica albuginea and Buck's fascia leads to Butterfly deformity. If unRx associated urethral injury urine can spread to limits of Scarpa's fascia – namely collar bones, mid-axillary lines and limit of fusion with fascia lata [NB. Dartos fascia also known as Colles' fascia]

Bladder

~ 500ml capacity

Anchored to anterior abdominal wall by urachus

Bladder neck

BN detrusor muscle develops into three distinct layers (differs for men vs. women:

- | | |
|--------|---|
| Inner | Radially orientated smooth muscles fibres contiguous with ureteric longitudinal smooth muscle |
| Middle | Circular pre-prostatic sphincter (adrenergic) men >> women |
| Outer | Thick longitudinal bundles of smooth muscle passing equatorially. Slips to puboprostatics and pubourethral ligs
? function in continence |

Trigone

Waldeyer's sheath develops only 2-3cm from trigone

Strong backplate of detrusor allows closure of ureteric orifice by flap mechanism – no intrinsic sphincter

3 layers of trigone:

- | | |
|-------------|---|
| Superficial | Fine longitudinal, contiguous with ureter. Joins with contralateral side to form intertrigonal bar (of Mercier)
Covered with thin layer of tightly adherent urothelium |
| Deep | Continuation of Waldeyer's sheath, inserts into BN |
| Outer | Outer smooth muscle layer from middle and outer layers of bladder neck |